

1981 Exhaust Emission Systems

FORD MOTOR CO. COLD START SPARK ADVANCE SYSTEM

DESCRIPTION

Some engines use a Cold Start Spark Advance System which is added to the distributor spark advance system. System consists of a Cold Start Spark Advance Ported Vacuum Switch (CSSA PVS), a 235°F Coolant PVS, a Distributor Retard Control Valve (DRCV), intake manifold vacuum tap, a carburetor spark port vacuum tap, and on some engines, a Spark Delay Valve (SDV).

OPERATION

System provides carburetor vacuum to the distributor from the carburetor vacuum tap, through the DRCV, CSSA PVS, and the cooling PVS. When the coolant temperature is between 125°F and 235°F, vacuum reaches the distributor from the carburetor spark port through the SDV, CSSA PVS, and cooling PVS. When the engine coolant is above 235°F, manifold vacuum is applied to the distributor advance through the PVS.

TESTING

1) To test both CSSA PVS and Coolant PVS, connect a vacuum gauge to port "D" and an unrestricted vacuum source to port "2". See Fig. 1. With engine cold, no vacuum should be indicated. Warm engine to normal operating temperature and vacuum should be indicated at CSSA PVS with engine at normal idle.

2) To further check coolant PVS, connect a "T" fitting and vacuum gauge in hose "D" with all other hoses connected. Gauge should not exceed 2 in. Hg vacuum at normal idle. In an artificially overheated engine (above 235°F), gauge should read full manifold vacuum. If above conditions are not met, replace defective valve(s).

NOTE — See also Ford Motor Co. Spark Delay Valves in this section.

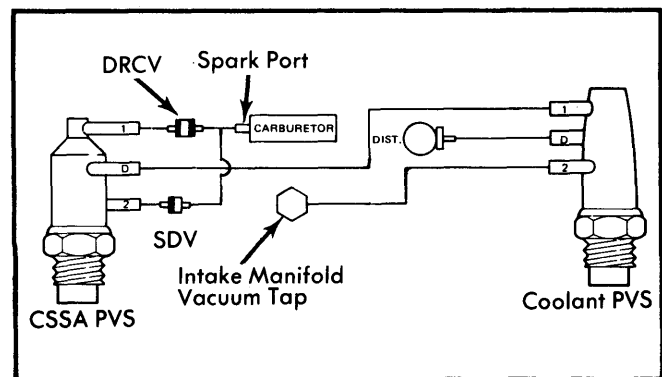


Fig. 1 Cold Start Spark Advance (CSSA) System

FORD MOTOR CO. COLD START SPARK HOLD SYSTEM

DESCRIPTION

Used on some engines, the Cold Start Spark Hold System provides momentary spark advance hold during acceleration when engine is cold, and is used to provide improved cold engine acceleration. System consists of a Cold Start Spark Hold Ported Vacuum Switch (CSSH PVS), a restrictor, an intake manifold vacuum tap, and on some models, a Spark Delay Valve (SDV).

OPERATION

When engine coolant is less than 128°F, the CSSH PVS is closed and the distributor vacuum signal travels through the restrictor.

At cold start, high vacuum acts on the distributor diaphragm, giving maximum spark advance. During cold acceleration, the

high vacuum already in the distributor diaphragm is slowly bled down through the restrictor, providing a modified vacuum advance during the initial stage of acceleration.

TESTING

1) With engine cold, connect vacuum gauge to distributor side of CSSH ported vacuum switch. No vacuum should be indicated with engine idling. With engine at normal operating temperature, vacuum should be the same as manifold vacuum.

2) Remove vacuum restrictor and test for flow in both directions. If blocked, replace restrictor. Restrictors are color coded according to hole size as follows: Blue — .015", Red — .020", Orange — .024" and Yellow — .030".